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EXAMINER

PATEL, TULSIDAS C

ART UNIT PAPER NUMBER

2839

DATE MAILED: 03/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,760

Applicant(s)

LIN, CHUANG-CHIA

Examiner

T. C. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 46-49 is/are allowed.
- 6) ☒ Claim(s) 1-3, 11-17, 19-31, 33-45, 50-55 and 57-61 is/are rejected.
- 7) ☒ Claim(s) 4-10, 18, 32 and 56 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

General Status

1. This is a First Action on the Merits. Claims 1-61 are pending in the case.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Numeral 311 cited on page 10, line 16 and numerals 408A, 408B cited on page 10, line 26. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

1. The disclosure is objected to because of the following informalities:
✓ Page 11, line 8, '460' should be changed to -458—and '406' should be changed to -456--.

Applicant is required to review the specification and make necessary corrections.

Claim Objections

2. Claim 11 is objected to because of the following informalities:

Extra period at the end of the claim should be deleted.

- ✓ Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 20 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

✓ Claim 20, it is not clear what is meant by 'a fixed end and a free end', fixed and free ends of which element?

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under

35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1, 2, 11-16, 19-22, 24-30, 33-38, 40-45, 50-54 and 57-60 are rejected under 35 U.S.C. § 102(b) as being anticipated by Swart et al. (US 6,025,951).

Swart et al. in figure 4-6, discloses a method of reducing stiction in MEMS device comprising a moveable element 42 coupled with an anti-stiction member 58, part of the member 58 acts as anti-stiction member, as the height prevents the mirror from sticking to the substrate 46. For the insulating material is air. For claim 16, the anti-stiction member is attached to both, moveable member and the substrate. For claims 21, 23, plural flexible members are disclosed for the anti-stiction member. For claims 41-43, mirror 42 deflects/reflects light. For claims 44 and 45, the mirror is able to rotate (figure 6a) or can also translate (figure 6c). For claim 50, the mirror arrangement forms a switch.

7. Claims 1, 2, 11, 12, 15-17, 24, 26, 29, 30, 31, 38, 41-44 and 50-55 are rejected under 35 U.S.C. § 102(e)(2) as being anticipated by Wu et al. (US 6,498,870).

Wu et al. in figure 9 and 10, discloses a method of reducing stiction in MEMS device comprising providing a substrate 17 with an anti-stiction member 172, and interposing the anti-stiction member between a moveable element 12 and the substrate. For claims 16 and 17, the anti-stiction member is attached to the substrate. For claims 24 and 26, the electrically insulating element is air. For claims 41-43, mirror 12 deflects/reflects light. For claim 44, the mirror is able to rotate. For claim 50, the mirror arrangement forms a switch.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Swart et al. (US 6,025,951) or Wu et al. (US 6,498,870) in view of Ilkov et al. (US 6,523,961).

As discussed above, Swart et al. or Wu et al. satisfies the limitations of claim 1. However, both do not disclose immersing the movable element is a liquid. Ilkov et al. in column 7, lines 17-19, discloses using liquid for providing anti-stiction characteristic to the moveable element. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use liquid in the device of Swart et al. or Wu et al. as taught by Ilkov et al. so that the light deflecting device can operate properly.

10. Claims 23, 39 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swart et al. (US 6,025,951) or Wu et al. (US 6,498,870) in view of Admitted Prior Art.

As discussed above, Swart et al. or Wu et al. satisfies the limitations of claims 15, 29, 38 and 50. However, both do not disclose standoff on the free end of the anti-stiction member. Admitted Prior Art, instant specification page 2, lines 15-16, discusses providing dimple on the microstructure. The dimples can be in the form of standoff. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide

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standoff on the moveable element, so as to reduce stiction between the substrate and the moveable element.

Allowable Subject Matter

11. Claims 4-10, 18, 32 and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 46-49 are allowed.

13. The prior art made of record and not relied upon is considered pertinent to applicant's invention. Wood et al. (US 6,396,975) and Fleming (US 5,867,302) both discloses MEMS devices.

Applicant also should consider these references in response to this office action. Should issue arise concerning the rejection presented above, these references may be relied upon in a subsequent action to support the lack of novelty or obviousness of claimed subject matter to one of ordinary skill in the art.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. C. Patel whose telephone number is (703) 308-1736. The examiner can normally be reached on 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (703) 308-2710. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1736.



T. C. Patel
Primary Examiner
Art Unit 2839

tcp
March 12, 2003